



**Granite School District
Parent Guides
Utah Core State Standards for Mathematics
Grades K-6**



GSD Parents' Guide for Kindergarten

Utah Core State Standards for Mathematics

The Utah Core State Standards for Mathematics addresses *Standards for Mathematical Practice* and *Standards for Mathematical Content*. The standards stress not only procedural skill but also conceptual understanding, to make sure students are learning the critical information they need to succeed at higher levels.

By using the *Standards for Mathematical Practice*, students make sense of problems, persevere in solving them, and attend to precision. They look for and make use of structure and express regularity in repeated reasoning. They reason abstractly and quantitatively, and they construct viable arguments and critique the reasoning of others. Students model with mathematics and use appropriate tools strategically.

The following *Standards for Mathematical Content* define what students should understand and be able to do in their study of kindergarten mathematics:

Counting and Cardinality

- Count to 100 by ones and by tens.
- Count forward from any number within the range of 1-100 (instead of having to begin at 1).
- Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
- Understand the relationship between numbers and quantities. Connect counting to cardinality.
- When counting objects, say the numbers names in order, pairing each object with one and only one number name and each number name with one and only one object.
- Understand that the last number said tells the number of objects counted. Understand that the number of objects remains the same regardless of their arrangement or the order in which they were counted.
- Understand that each successive number name refers to a quantity that is one larger.
- Count to answer “how many” questions for a group of up to 20 objects arranged in a line, a rectangular array, or a circle. Count to answer “how many” questions for a group of up to 10 objects in a scattered arrangement. Given a number from 1-20, count out that many objects.
- Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group.
- Compare two numbers between 1 and 10 presented as written numerals.

Operations and Algebraic Thinking

- Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions, or equations.
- Solve addition and subtraction word problems. Add and subtract within 10 using objects and drawings to represent the problem.
- Decompose numbers less than or equal to 10 into pairs in more than one way. *For example, $5 = 2 + 3$ and $5 = 4 + 1$.*
- Find the number that makes 10 when added to a given number from 1 to 9.
- Fluently add and subtract within 5.

Number and Operations in Base Ten

- Compose and decompose numbers from 11 to 19 into ten ones and some further ones.

Measurement and Data

- Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
- Directly compare two objects with a measurable attribute in common. Describe which object has “more of” or “less of” the measurable attribute. *For example, compare the heights of two children and describe one child as taller or shorter than the other.*
- Classify objects into given categories. Count the number of objects in each category and sort the categories by count.

Geometry

- Describe objects in the environment using names of shapes. Describe the relative positions of these objects using terms such as *above, below, beside, in front of, behind,* and *next to*.
- Correctly name shapes regardless of their orientations or overall size.
- Identify shapes as two-dimensional or three-dimensional.
- Analyze and compare two-dimensional and three-dimensional shapes. Use informal language to describe their similarities, differences, parts, and other attributes.
- Model shapes in the world by building shapes from components and drawing shapes.
- Compose simple shapes to form larger shapes. *For example, join two triangles to form a rectangle.*

GSD Parents' Guide for 1st Grade



Utah Core State Standards for Mathematics

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By using the *Standards for Mathematical Practice*, students make sense of problems, persevere in solving them, and attend to precision. They look for and make use of structure and express regularity in repeated reasoning. They reason abstractly and quantitatively, and they construct viable arguments and critique the reasoning of others. Students model with mathematics and use appropriate tools strategically.

The following *Standards for Mathematical Content* define what students should understand and be able to do in their study of first grade mathematics:

Operations and Algebraic Thinking

- Use addition and subtraction within 20 to solve word problems by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- Solve word problems involving addition of three whole numbers whose sum is less than or equal to 20 by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- Apply properties of operations as strategies to add and subtract. *For example, if $8 + 3 = 11$ is known, then $3 + 8 = 11$ is also known by the Commutative Property of Addition.*
- Understand subtraction as an unknown-addend problem. *For example, to find $10 - 8$, find the number to add to 8 to make 10.*
- Relate counting to addition and subtraction. *For example, count on 2 to a number when adding 2.*
- Add and subtract within 20. Demonstrate fluency for addition and subtraction within 10.
- Understand the meaning of the equal sign. Determine if addition and subtraction equations are true or false. *For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.*
- Determine the unknown whole number in addition and subtraction equations that relate to three whole numbers. *For example, determine the unknown whole number that makes $8 + ? = 11$ true.*

Number and Operations in Base Ten

- Count to 120 starting at any number. Read and write numerals within 120. Represent a number of objects within 120 with a written numeral.
- Understand that the digits in a two-digit number represent tens and ones.
- Understand that 10 can be thought of as a bundle of ten ones called a “ten.”
- Understand that the numbers 11 to 19 are composed of a ten and a set number of ones. *For example, 13 is composed of a ten and three ones.*
- Understand that the numbers 10, 20, 30, 40, 50, 60, 70, 80, and 90 refer to a set number of tens. *For example, 40 is four tens.*
- Compare two two-digit numbers based on the meanings of the tens and ones digits. Record the comparison with the symbols $>$, $<$, or $=$.
- Add within 100. Add a two-digit number and a one-digit number. Add a two-digit number and a multiple of ten. Understand that in addition, ones are added to ones and tens are added to tens. Understand that regrouping ones to compose a ten is sometimes necessary.
- Mentally find 10 more or 10 less than a given number without having to count. Explain the reasoning used to find the answers.
- Subtract multiples of 10 in the range of 10-90 from multiples of 10 in the range of 10-90. Explain the reasoning used to find the answers. *For example, solve $80 - 30$.*

Measurement and Data

- Order three objects by length. Compare the lengths of two objects indirectly by using a third object.
- Express the length of an object as a whole number of length units. Understand that length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.
- Tell and write time in hours and half-hours using analog and digital clocks.
- Organize, represent, and interpret data with up to three categories. Ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Geometry

- Distinguish between defining and non-defining attributes of shapes. *For example, defining attributes of a triangle include “closed” and “three-sided,” while non-defining attributes might include “red” or “small.”* Build and draw shapes to possess defining attributes.
- Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create composite shapes. Compose new shapes from the composite shape.
- Partition circles and rectangles into two and four equal shares. Describe the shares using the words *halves*, *fourths*, and *quarters*, and use the phrases *half of*, *fourth of*, and *quarter of*. Describe the whole as two of or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

GSD Parents' Guide for 2nd Grade

Utah Core State Standards for Mathematics

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By using the *Standards for Mathematical Practice*, students make sense of problems, persevere in solving them, and attend to precision. They look for and make use of structure and express regularity in repeated reasoning. They reason abstractly and quantitatively, and they construct viable arguments and critique the reasoning of others. Students model with mathematics and use appropriate tools strategically.

The following *Standards for Mathematical Content* define what students should understand and be able to do in their study of second grade mathematics:

Operations and Algebraic Thinking

- Use addition and subtraction within 100 to solve one-and two-step word problems. Use drawings and equations with a symbol for the unknown number to represent the problem.
- Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.
- Determine whether a group of up to 20 objects has an odd or even number of members. Write an equation to express an even number as a sum of two equal addends.
- Use addition to find the total number of objects arranged in a rectangular array with up to 5 rows and 5 columns. Write an equation to express the total as a sum of equal addends.

Number and Operations in Base Ten

- Understand that the three digits of a three-digit number represent hundreds, tens, and ones. Understand that 100 can be thought of as a bundle of ten tens called a “hundred.” Understand that multiples of 100 refer to a set number of hundreds, 0 tens, and 0 ones. *For example, 200 refers to 2 hundreds, 0 tens, and 0 ones.*
- Count within 1000. Skip count by 5’s, 10’s, and 100’s.
- Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
- Compare two three-digit numbers based on means of the hundreds, tens, and ones. Use $>$, $=$, and $<$ symbols to record the results of comparisons.
- Fluently add and subtract within 100.
- Add up to four two-digit numbers.

- Add and subtract within 1000. Understand that in adding or subtracting, one adds or subtracts hundreds and hundreds, tens and tens, and ones and ones. Understand that regrouping is sometimes necessary.
- Mentally add 10 or 100 to a given number 100-900. Mentally subtract 10 or 100 from a given number 100-900.
- Explain why addition and subtraction strategies work, using place value and the properties of operations.

Measurement and Data

- Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
- Measure the length of an object twice, using two different measurement units. Describe how the two measurements relate to the size of the unit chosen.
- Estimate lengths using units of inches, feet, centimeters, and meters.
- Measure to determine how much longer one object is than another. Express the difference in length in standard units.
- Use addition and subtraction within 100 to solve word problems involving lengths given in the same units.
- Represent whole numbers as lengths from 0 on a number line with equally spaced points corresponding to each number. Represent sums and differences of whole numbers within 100 on a number line.
- Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
- Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies. Use \$ and ¢ symbols appropriately.
- Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurement data on a line plot.
- Draw picture graphs and bar graphs, with single-unit scales, to represent data sets with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.

Geometry

- Recognize and draw shapes having specific attributes. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
- Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.
- Partition circles and rectangles into two, three, or four equal shares. Describe the shares using the words *halves*, *thirds*, *half of*, *a third of*, etc. Describe the whole as two halves, three thirds, and four fourths. Recognize that equal shares of identical wholes need not have the same shape.

GSD Parents' Guide for 3rd Grade



Utah Core State Standards for Mathematics

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The following *Standards for Mathematical Content* define what students should understand and be able to do in their study of third grade mathematics:

Operations and Algebraic Thinking

- Interpret products of whole numbers. *For example, describe a context in which a total number of objects can be expressed as 5×7 .*
- Interpret whole-number quotients of whole numbers. *For example, describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.*
- Use multiplication and division within 100 to solve word problems.
- Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
- Apply properties of operations as strategies to multiply and divide. *For example, if $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative Property of Multiplication)*
- Understand division as an unknown factor problem. *For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8.*
- Fluently multiply and divide within 100. Know from memory all products of two one-digit numbers.
- Solve two-step word problems using the four operations. Represent the problems using equations with a letter standing for the unknown quantity. Decide if answers are reasonable using mental computation and estimation strategies including rounding.
- Identify arithmetic patterns and explain them using properties of operations.

Number and Operations in Base Ten

- Use place value understanding to round whole numbers to the nearest 10 or 100.
- Fluently add and subtract within 1,000.
- Multiply one-digit whole numbers by multiples of 10 in the range of 10-90. *For example, 9×80 .*

Number and Operations – Fractions

- Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts. Understand a fraction a/b as the quantity formed by a parts of size $1/b$.

- Represent a fraction $1/b$ on a number line. Define the interval from 0 to 1 as the whole and partition it into b equal parts.
- Represent a fraction a/b on a number line by marking off a lengths of $1/b$ from 0.
- Understand that two fractions are equivalent if they are the same size or the same point on a number line.
- Recognize and make simple equivalent fractions. *For example, $1/2 = 2/4$.* Explain why the fractions are equivalent.
- Express whole numbers as fractions, and recognize fractions that are equal to whole numbers. *For example, $3 = 3/1$; $4/4 = 1$.*
- Compare two fractions with the same numerator or the same denominator by reasoning about their size. Record the results of comparisons with the symbols $<$, $>$, or $=$.

Measurement and Data

- Tell and write time to the nearest minute. Measure elapsed time in minutes. Solve elapsed time word problems using addition and subtraction.
- Measure and estimate liquid volumes and masses of objects using grams, kilograms, and liters. Add, subtract, multiply, or divide to solve one-step word problems using masses and volumes.
- Draw scaled picture and bar graphs. Solve one- and two-step “how many more” and “how many less” problems using information in scaled bar graphs.
- Generate measurement data by measuring lengths in halves and fourths of an inch. Show the data in a line plot with the horizontal scale marked in whole numbers, halves, and fourths.
- Recognize area as an attribute of plane figures. “Unit squares” are used to measure area in “square units.” A plane figure which can be covered by n unit squares is said to have an area of n square units.
- Measure area by counting unit squares.
- Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.
- Solve real world and mathematical problems by multiplying whole-number side lengths to find areas of rectangles.
- Use tiling to model that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the Distributive Property.
- Recognize area as additive by decomposing rectilinear figures into non-overlapping rectangles and adding the areas of the non-overlapping parts. Apply this strategy to solve real world problems.
- Solve real world and mathematical problems involving perimeters of polygons. Find the perimeter with given side lengths and find an unknown side length. Show rectangles with the same perimeter and different areas or with the same area and different perimeters.

Geometry

- Understand that shapes in different categories (e.g., rhombuses and rectangles) may share attributes (e.g., four sides) and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
- Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into four parts with equal area, and describe each part as $1/4$ of the area of the shape.*

GSD Parents' Guide for 4th Grade

Utah Core State Standards for Mathematics

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The following *Standards for Mathematical Content* define what students should understand and be able to do in their study of fourth grade mathematics:

Operations and Algebraic Thinking

- Interpret a multiplication equation as a comparison. *For example, interpret $35 = 5 \times 7$ as 35 is 5 times as many as 7 and 7 times as many as 5.* Represent verbal statements of multiplicative comparisons as equations.
- Multiply or divide to solve word problems involving multiplicative comparisons.
- Solve multi-step word problems with whole numbers and having whole number answers using the four operations. Interpret remainders in division problems. Write equations for the problems using a letter to represent the unknown quantity. Decide if answers are reasonable using mental computation and estimation strategies including rounding.
- Find all factor pairs for whole numbers 1-100. Determine whether a whole number 1-100 is a multiple of a given one-digit number. Determine whether a whole number 1-100 is prime or composite.
- Generate a number or shape pattern that follows a given rule.

Number and Operations in Base Ten

- Recognize that in a multi-digit whole number, a digit in one place is 10 times as much as it is in the place to its right.
- Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers.
- Use place value understanding to round multi-digit whole numbers to any place.
- Fluently add and subtract multi-digit whole numbers using the standard algorithm.
- Multiply a whole number of up to four digits by a one-digit whole number. Multiply two two-digit numbers.
- Divide up to four-digit dividends by one-digit divisors to find whole-number quotients and remainders.

Number and Operations – Fractions

- Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models. Generate equivalent fractions using this principle.
- Compare two fractions with different numerators and different denominators.
- Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
- Decompose a fraction into a sum of fractions with the same denominator in more than one way. *For example, $3/8 = 1/8 + 1/8 + 1/8$ and $3/8 = 2/8 + 1/8$.*
- Add and subtract mixed numbers with like denominators.
- Solve word problems involving addition and subtraction of fractions having like denominators.
- Understand a fraction a/b as a multiple of $1/b$. *For example, $5/4 = 5 \times (1/4)$.*
- Understand a multiple of a/b as a multiple of $1/b$ to multiply a fraction by a whole number. *For example, $3 \times (2/5)$ is the same as $6 \times (1/5) = 6/5$.*
- Solve word problems involving multiplication of a fraction by a whole number.
- Express a fraction with a denominator of 10 as an equivalent fraction with a denominator of 100. Use this to add two fractions with denominators of 10 and 100. *For example, express $3/10$ as $30/100$, and add $3/10 + 4/100 = 34/100$.*
- Write fractions with denominators of 10 or 100 as decimals.
- Compare two decimals to hundredths.

Measurement and Data

- Know relative sizes of measurement units within one system. Within one system of measurement, convert a larger unit to a smaller unit. Record measurement equivalents in a two-column table.
- Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money. Include problems using simple fractions or decimals and converting measurements of a larger unit to a smaller unit.
- Apply the area and perimeter formulas for rectangles in real world and mathematical problems.
- Make line plots to display data sets of measurements in fractions of a unit. Solve addition and subtraction fraction problems using the information in the line plots.
- Recognize that angles are formed by two rays sharing a common endpoint.
- Understand that an angle is measured with reference to a circle. An angle is a fraction of the circular arc between the points where the two rays intersect a circle. A “one-degree angle” is $1/360$ of a circle and can be used to measure angles.
- Measure angles in whole number degrees using a protractor. Sketch angles of given measures.
- Decompose an angle into a sum of angles. *For example, $90^\circ = 65^\circ + 25^\circ$.* Solve addition and subtraction problems to find unknown angles in real world and mathematical problems.

Geometry

- Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
- Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of specific angles. Identify right triangles.
- Recognize a line of symmetry for two-dimensional figures. Identify line-symmetric figures and draw lines of symmetry.

GSD Parents' Guide for 5th Grade

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The following *Standards for Mathematical Content* define what students should understand and be able to do in their study of fifth grade mathematics:

Operations and Algebraic Thinking

- Evaluate numerical expressions containing grouping symbols.
- Write and interpret simple numerical expressions. *For example, add 8 and 7, then multiply by 2 is $2 \times (8 + 7)$. Recognize that $3 \times (18,932 + 921)$ is three times as large as $18,932 + 921$.*
- Create two numerical patterns using given rules. Identify relationships between corresponding terms. Form ordered pairs from the corresponding terms and graph the ordered pairs on a coordinate plane.

Number and Operations in Base Ten

- Recognize that in a multi-digit number, a digit in one place is 10 times as much as it is in the place to its right and 1/10 of what it is in the place to its left.
- Explain patterns in the number of zeros in the product when multiplying by a power of 10. Explain patterns of decimal point placement when multiplying or dividing by a power of 10. Use whole number exponents to represent powers of 10.
- Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.
- Compare two decimals to thousandths.
- Round decimals to any place.
- Fluently multiply multi-digit whole numbers using the standard algorithm.
- Divide up to four-digit dividends by two-digit divisors to find whole-number quotients.
- Add, subtract, multiply, and divide decimals to hundredths.

Number and Operations – Fractions

- Add and subtract fractions with unlike denominators (including mixed numbers) by replacing fractions with equivalent fractions with like denominators.
- Solve word problems involving addition and subtraction of fractions.
- Interpret a fraction as division of the numerator by the denominator. Solve word problems leading to answers in the form of fractions or mixed numbers.
- Interpret the product of $(a/b) \times q$ as a parts of a partition of q into b equal parts. Interpret the product of $(a/b) \times (c/d) = ac/bd$.
- Find the area of a rectangle with fractional side lengths by tiling it with unit squares. Show that the area is the same as would be found by multiplying the side lengths.
- Compare the size of a product to the size of one factor on the basis of the size of the other factor.
- Explain why multiplying a number by a fraction greater than 1 results in a product greater than the given number. Explain why multiplying a number by a fraction less than 1 results in a product smaller than the given number. Understand that multiplying the numerator and denominator of a fraction by the same number, to obtain an equivalent fraction, is the same as multiplying by 1.
- Solve real world problems using multiplication of fractions and mixed numbers.
- Divide a unit fraction by a non-zero whole number.
- Divide a whole number by a unit fraction.
- Solve real world problems using division of unit fractions by non-zero whole numbers and whole numbers by unit fractions.

Measurement and Data

- Convert units within the metric and customary measurement systems when solving multi-step, real world problems.
- Make line plots to display data sets of measurements in fractions of a unit. Solve fraction problems using the information in the line plots.
- Recognize that volume is an attribute of solid figures, and solid figures can be packed with unit cubes to measure volume in cubic units.
- Measure volume by counting unit cubes.
- Find the volume of a right rectangular prism by packing it with unit cubes. Show that the volume is the same as would be found by multiplying the edge lengths.
- Apply the formulas $V = l \times w \times h$ and $V = b \times h$ to find the volume of right rectangular prisms when solving real world and mathematical problems.
- Find the volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the two parts when solving real world problems.

Geometry

- Define the parts of a coordinate plane system (x -axis, y -axis, origin). Understand that an ordered pair of numbers (x,y) locates a point on a coordinate plane.
- Represent and interpret real world and mathematical problems by graphing points in the first quadrant of the coordinate plane.
- Understand that attributes belonging to a category of two-dimensional figures belongs to all subcategories of that category.
- Classify two-dimensional figures in a hierarchy based on properties.

GSD Parents' Guide for 6th Grade

Utah Core State Standards for Mathematics

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By using the *Standards for Mathematical Practice*, students make sense of problems, persevere in solving them, and attend to precision. They look for and make use of structure and express regularity in repeated reasoning. They reason abstractly and quantitatively, and they construct viable arguments and critique the reasoning of others. Students model with mathematics and use appropriate tools strategically.

The following *Standards for Mathematical Content* define what students should understand and be able to do in their study of sixth grade mathematics:

Ratios and Proportional Relationships

- Understand ratios and use ratio language to describe relationships between two quantities.
- Understand unit rates and use rate language to describe a ratio relationship.
- Use ratio and rate reasoning to solve real world and mathematical problems.
- Make tables of equivalent ratios and plot the pairs of values on a coordinate plane. Use tables to compare ratios.
- Solve unit rate problems including unit pricing and constant speed.
- Solve problems finding the percent of a quantity and determining the whole, given a part and the percent.
- Convert measurements using ratio reasoning.

The Number System

- Divide fractions by fractions and interpret quotients in word problems.
- Fluently divide multi-digit numbers using the standard algorithm.
- Fluently add, subtract, multiply and divide multi-digit decimals using the standard algorithms.
- Find the greatest common factor of two whole numbers less than or equal to 100. Find the least common multiple of two whole numbers less than or equal to 12. Use the Distributive Property to factor out the greatest common factor from a sum of two whole numbers. *For example, express $36 + 8$ as $4(9 + 2)$.*
- Understand that positive and negative numbers are used together to describe quantities having opposite directions or values. *For example, temperature above/below zero.* Use integers to represent real world contexts and explain the meaning of 0 in each situation.
- Recognize opposite signs of numbers indicate locations on opposite sides of 0 on a number line.
- Understand that signs of numbers in ordered pairs indicate location of a point in a quadrant of a coordinate plane. Recognize that when two ordered pairs differ only by signs, the locations of the points are reflections across one or both axes.

- Find and position integers and other rational numbers on a number line and on a coordinate plane.
- Interpret an inequality by describing the relative position of the two numbers on a number line.
For example, interpret $-3 > -7$ as -3 is located to the right of -7 on a horizontal number line.
- Write, interpret, and explain statements of order for rational numbers in real world contexts.
- Understand the absolute value of a rational number as its distance from 0. Interpret absolute value of rational numbers in real world contexts.
- Solve real world and mathematical problems by graphing points in all four quadrants on a coordinate plane. Use coordinates and absolute value to find the distance between points.

Expressions and Equations

- Write and evaluate numerical expressions involving whole-number exponents.
- Write, read, and evaluate expressions in which letters stand for numbers.
- Identify parts of an expression (sum, term, product, factor, quotient, coefficient).
- Solve real world problems using substitution of number for variables in formulas and following the Order of Operations.
- Apply the properties of operations to generate and identify equivalent expressions.
For example, $3(2 + x)$ is equivalent to $6 + 3x$ and $y + y + y$ is equivalent to $3y$.
- Determine which value(s) from a specified set make an equation or inequality true.
- Solve real world and mathematical problems by writing and solving equations in the forms $x + p = q$ and $px = q$ for nonnegative rational numbers.
- Write inequalities in the form $x > c$ and $x < c$ to represent real world and mathematical problems and graph the solutions of the inequalities on a number line.
- Represent and analyze the relationship between dependent and independent variables in a real world problem using graphs, tables, and equations.

Geometry

- Find the area of right triangles, other triangles, special quadrilaterals, and polygons in real world and mathematical problems.
- Find the volume of right rectangular prisms with fractional edge lengths. Show that the volume is the same as would be found by multiplying the edge lengths of the prism.
- Draw polygons in the coordinate plane and find the length of a side.
- Represent three-dimensional figures using nets composed of rectangles and triangles, and use the nets to find the surface area of these figures.

Statistics and Probability

- Recognize that a statistical question anticipates variability in the data.
- Understand that a set of data has a distribution that can be described by its center, spread, and overall shape.
- Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
- Summarize data by reporting the number of observations and describing the attribute being measured.
- Find measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation) of a set of data.